

18.8200

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S/126/62/014/001/008/018
E193/E383

AUTHOR: Pavlov, V.A. and Pereturina, I.A.

TITLE: The effect of alloying additions on the mechanics of plastic deformation of alloys and on the shape of the stress/strain diagram

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 1, 1962, 92 - 98

TEXT: The object of the work described in the present paper was to analyze a large body of experimental data obtained by the present authors and by other, both Soviet and foreign, workers and to correlate data relating to pure metals (Al, Ni) and alloys (Al-Mg, Ni-Cu, Ni-Al, Ni-Co) in order to evaluate the effect of alloying on some aspects of plastic deformation of metals. The first chapter is devoted to the temperature-dependence of the yield point. The effect of alloying on this relationship is demonstrated schematically in Fig. 1, where the yield point (σ) is plotted against temperature (T), curves 1 and 2 relating, respectively, to pure metals and alloys. The

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difference is that curve 2 has a maximum which is a common feature of many alloys constituting solid solutions. The height of this maximum and its position depend on the rate of strain; this dependence is, obviously, governed by plastic deformation-induced diffusion processes, whose nature may change from alloy to alloy and which may be associated with decomposition of the solid solution, changes in the short-range order, changes in the K-state or redistribution of alloying additions in the stress field of moving dislocations. As to the concentration-dependence of the yield point, it is generally accepted that this property is related to the magnitude of static distortions of the crystal lattice $\sqrt{u_{CT}^{-2}}$, caused by the alloying-additions atoms, and that the yield point increases with increasing $\sqrt{u_{CT}^{-2}}$.

At low concentrations of the alloying elements, however, alloying brings about a decrease in the yield point of metals. This is demonstrated in Fig. 2, where the yield point (σ_y , kg/mm²) of Ni-Cu alloys at temperatures indicated by each curve is plotted

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against the Cu content (%). The presence of a maximum on curves of this type has been attributed to the refining (purifying) effect of small alloying additions. Since, however, the magnitude of this effect in Ni-Al alloys decreases with increasing rate of strain (or with decreasing temperature in the case of Ni-Cu alloys) it is obvious that it must be caused by some other factors. Passing-on to the effect of alloying additions on the shape of the true-stress/strain diagram, the authors distinguish between two types of this diagram. In the low-temperature type, the stress reaches its maximum near the end of the diagram (i.e. at high strain values) after which it decreases rapidly due to the onset of localized deformation (necking); in the high-temperature type the maximum of the true stress is reached near the beginning of the diagram (i.e. at low strain values); after that the stress remains constant or slowly decreases and finally falls down rapidly when the neck begins to form. In all the systems studied the introduction of alloying elements raises the temperature at which the stress/strain diagram changes from the low-temperature to the high-temperature type. The addition of alloying elements increases also the value

The effect of alloying

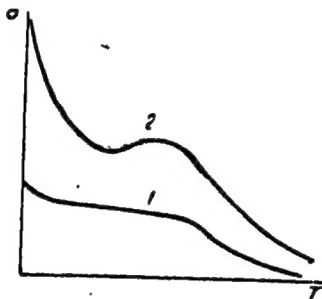
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of stress σ_{III} at which the parabolic increase in the resistance-to-deformation of strained metal begins. This indicates a decrease in the energy of the stacking faults. There are 9 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals of the AS USSR)

SUBMITTED: July 29, 1961 (initially)
December 27, 1961 (after revision)

Fig. 1:



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SOV/137 58 8-17716

Translation from: Referativnyy zhurnal, Metallurgiya 1958. Nr 8. p 217 (USSR)

AUTHORS: Pavlov, V. A., Gaydukov, M. G., Grin', A. V., ~~Perelutskaya, I. A.~~

TITLE: The Effect of Static Distortions of the Crystal Lattice on the Mechanical Properties of Alloys of Solid Solutions of Aluminum With Magnesium (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva spлавov α -tverdogo rastvora alyuminiya s magniyem)

PERIODICAL: V sb.: Issled. po zharoprochn. spлавam. Vol 2. Moscow AN SSSR, 1957, pp 257-265

ABSTRACT: Investigations performed dealt with the effect of static distortions of the crystal lattice on the mechanical properties of an α -solid solution of Al-Mg (0.01-2% Mg) the cohesive forces in which are independent of the concentration of the solid solution. In studying the relationship between E and the temperature, it was established that E and G do not depend of the concentration within a relatively wide range of temperatures, 20-700°C. The structure of alloys which had been deformed as well as the processes occurring during deformation were

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studied by means of investigation of the internal friction (IF)

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The Effect of Static Distortions of the Crystal Lattice (cont.)

within plastically deformed alloys. The IF was determined at torsional vibrations with a frequency of 1 cps. The IF graph for pure Al exhibits one maximum at approximately 250° , whereas the IF graphs of alloys show two maxima at 130° and at 250° . In the recrystallized state, the alloys exhibit one maximum at 300° , a condition indicative of relaxation along the grain boundaries. The maximum IF point, corresponding to 250° and situated in the region of recrystallization (R) temperatures, is governed by the viscous behavior of the slip lines. In the light of dislocation theory this maximum is attributable to the dispersion of energy connected with the motion of dislocations (D) under the influence of external stresses. The IF maximum at 130° is attributable to the diffusion of Mg in alloys which have been deformed. As the concentration of Mg in the solid solution is increased, this maximum is displaced toward higher temperatures (up to 200°). The energy of activation of the diffusion of Mg throughout deformed alloys increases with increasing concentrations of Mg. In alloys which have been deformed and which exhibit static distortions, the additives are unevenly distributed throughout the volume, a condition which, as shown by experiments, significantly affects the kinetics of plastic deformation, recovery, and recrystallization. In the light of the dislocation theory, the increase in R temperature is explained by the formation of clouds of Mg atoms around the D's with resulting reduction

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The Effect of Static Distortions of the Crystal Lattice (cont.)

in the mobility of the latter. Bibliography: 18 references. See also RZhMet
1958; Nr 3, abstract 5868.

L G

1. Aluminum-magnesium alloys--Mechanical properties
2. Crystals--Distortion 3. Crystals--Lattices

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126-5-3-14/31

AUTHORS: Grin', A.V., Pavlov, V. A. and Pereturina, I. A.

TITLE: Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva splavov alyuminiya s magniyem) I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation (Zavisimost' predela tekuchesti i vremennogo soprotivleniya ot temperatury i skorosti deformirovaniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1957, Vol 5, Nr 3. pp 493-500 (USSR)

ABSTRACT: The aim of the work described in this paper was to study the influence on the mechanical properties of the static distortions of the crystal lattice which are caused by atoms of the dissolved elements and the diffusion processes taking place as a result of stresses occurring during plastic deformation. Aluminium-magnesium alloys were used in the experiments. Earlier investigations of one of the authors and his team (Refs.10, 11) have shown that considerable static distortions of the crystal lattice take place, which are brought about by magnesium atoms but

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Influence of Static Distortions of the Crystal Lattice on the
Mechanical Properties of Aluminium-Magnesium Alloys.
I. Dependence of the Yield Point and the Ultimate Strength on the
Temperature and the Speed of Deformation

the bond forces do not change the composition of the alloy. Such a combination of properties permits studying in the pure form the influence of crystal lattice distortions on the mechanical properties. The authors investigated the temperature dependence of the yield point and the ultimate strength of pure aluminium (containing about 0.01% Mg, 0.0017% Fe, 0.0014% Si, 0.0011% Cu) and its magnesium alloys (0.05, 0.1, 0.3, 0.5 and 1% Mg) in the temperature range between 80 and 700°K for widely differing deformation speeds ($6.4 \cdot 10^{-3}$, $2 \cdot 10^{-1}$, $2 \cdot 10^{-4}$). It was established that for pure aluminium the temperature dependence of the yield point in the temperature range up to 500°K is determined fundamentally by a change in the interatomic bond forces. At elevated temperatures a more pronounced dependence was detected of the yield point on the temperature, which is apparently due to deformations along the grain boundaries. Hardening of the aluminium alloys with magnesium is caused by static distortions of

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Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys.

I. Dependence of the Yield Point and the Ultimate Strength on the Temperature and the Speed of Deformation

the crystal lattice which are brought about by magnesium atoms. The diffusion processes lead to a non-monotonous dependence of the yield point on the temperature, an anomalous dependence on the speed of deformation and a complication of the dependence of the mechanical properties on the composition of the alloy and on the conditions of deformation. Maxima were observed of the yield point in the temperature range of about 500°K and increased values at 80°K which are attributed to various types of diffusion processes taking place in the case of deformation under the effect of stresses. Thus, it was found that static distortions of the crystal lattice, brought about by the magnesium atoms, cause an increase in the yield point and the ultimate strength. In the second part of this paper (1958, Vol VI, Nr 1, pp.110-115), the authors investigate the total and the uniform deformation of alloys of aluminium with magnesium in the temperature range of 80 to 700°K for the same range of speeds of deformation. They found that

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the static distortions of the crystal lattice caused by magnesium atoms reduces the plasticity and that the diffusion processes taking place as a result of the stresses during deformation of alloys bring about an increase in the plasticity and complicate the temperature dependence of the total and the uniform elongations. In alloys of aluminium with magnesium, the crystal structure of which has suffered static distortions, a complicated dependence is observed of the total and the uniform elongations on the temperature and the speed of deformations. The plastic properties of such alloys is apparently determined by several factors which act simultaneously, namely: a more uniform distribution of the plastic deformation along the volume of the crystal and an increase of the effective volume which participates in the deformation, brings about an increase in the plasticity of the alloys; a diffusion of the atoms of the alloying elements under the effect of stresses taking

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place during deformation and causing a reduction of the peaks of over-stresses in the neighbourhood of non-uniformities of the crystal lattice and in the neighbourhood of microscopic cracks bring about an increase of the plasticity; an increase of the types II and III distortions during plastic deformation and an increase of the resistance to deformation in the alloys bring about a reduction in the plasticity. Obviously, the interaction of these factors will cause a sufficiently complicated dependence of the uniform and the total elongations on the composition of the alloy and the conditions of deformation.

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There are 8 figures and 23 references, 15 of which are Soviet, 7 English, 1 German.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR
(Institute of Metal Physics, Ural Branch, Ac.Sc., USSR)

SUBMITTED: August 11, 1956.

- : 1. Alloys--Mechanical properties 2. Alloys--Temperature factors
3. Crystals--Lattices 4. Crystals--Distortion

SOV/126-6-4-21/34

AUTHORS: Pavlov, V.A.,
Pereturina, I.A.

TITLE: Mechanical Properties of the Nickel-Copper Alloys
(Mekhanicheskiye svoystva splavov nikelya s med'yu)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6,
Nr 4, pp 717-724 (USSR)

ABSTRACT: The effect of the temperature and the rate of deformation on the yield point, σ , of pure nickel and its alloys containing 10, 20, 40 and 60% copper was investigated. High purity (99.99%) electrolytic nickel and electrolytic copper with less than 0.05% impurities, both degassed by re-melting in a vacuum of 10^{-5} mm Hg, were used for the preparation of the experimental alloys melted in vacuum. The ingots were forged into 10 x 10 mm rods whose size was then reduced to 5 x 5 mm by rolling. This was followed by several wire-drawing operations with intermediate anneals. The conditions of the final heat treatment were adjusted so as to obtain the same grain size (approx 0.1 mm) in all the investigated alloys. The tensile tests were carried out on wire test pieces (1 mm diameter, 55 mm long) at temperatures ranging

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SOV/126-6-4-1, 3.

Mechanical Properties of the Nickel-Copper Alloys

from -196 to $+700^{\circ}\text{C}$ and at three rates of strain: 2×10^{-4} , 6.4×10^{-3} and 2×10^{-1} cm/sec. The graphs showing the temperature dependence of σ of pure nickel and its alloys deformed at various rates of strain are reproduced in Fig.1, 2 and 3. The variation of σ of pure nickel with temperature is very small up to 600°K , while above this temperature it decreases exponentially. (The $\ln \sigma$ versus $1/T$ graph is shown in Fig.4) It is easy to show that the temperature dependence of σ in the low temperature region is determined mainly by the variation of the atomic bond forces with the temperature: Graph 1 in Fig.5 shows the temperature dependence of the yield point/elastic modulus ratio (σ/E) for polycrystalline nickel. It can be seen that up to 600°K this ratio remains practically constant. (In the case of a single nickel crystal, the temperature interval within which σ varies little with temperature is even wider, as is shown by graph 2 in Fig.5 which represents the temperature dependence of τ/E , where τ is the critical shear stress). This effect which has been also observed

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SOV/12000

Mechanical Properties of the Nickel-Copper Alloys

in aluminium (Ref.2, 11), copper (Ref.12) and gold (Ref.10) appears to be a characteristic of metals with the face-centred cubic crystal lattice. The yield point of the Ni-Cu alloys is higher than that of pure nickel and reaches its maximum value at 40% Cu (Fig.2). The fact that G of all alloys is greatly affected by temperature cannot be explained by the variation of the atomic bond forces with temperature: The temperature dependence of G/E of three alloys deformed at the same rate of strain is shown in Fig.6, and it is quite apparent that this ratio depends to a considerable degree on the temperature at which the alloy is being deformed. In addition, the variation of G with the temperature is not monotonic: The G/T graphs show two maxima, one in the high temperature range, the other approx 200°K. The magnitude and location of these maxima depend on the composition of the alloy and on the rate of strain. In general, the magnitude of the critical point (U.T.S.) increases with increasing copper content up to 40% Cu and then decreases. However, more careful examination of the strain/stress curves reveals that the increase

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of U.T.S. is associated mainly with the increase of the yield point: If the strain/stress curves of the investigated alloys are drawn together in such a way that the yield point coincides with the origin of the co-ordinates, it is seen that the increase of the stress due to strain hardening is less in the nickel alloys than in pure nickel (Fig.7). The experimental results are correlated with those obtained by other workers and the following conclusions are reached:

(i) The variation of the atomic bond forces and static lattice distortions cannot account for the increased strength of the Ni-Cu alloys, since the former decrease with the rising Cu content, while the lattice distortions at temperatures higher than 300°C are quite small.

(ii) The increased strength of the investigated alloys is caused mainly by non-uniform distribution of the atoms of the alloying element in the solid solution. It is postulated on the basis of the experimental results that there are three possible causes of non-uniform

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distribution of the solute atoms: (a) High concentration of the atoms of the alloying element at the grain and sub-grain boundaries, (b) Formation of solute atom "clouds" around the dislocations, (c) Short-range order i.e. deviation from the statistical distribution of the solute atoms in the solid solution.

(iii) The yield point of pure nickel consists of two components: One due to shear within the grains whose value changes very slightly with the temperature and the other due to shear along the grain boundaries, the temperature dependence of which is approximately exponential.

(iv) From the non-monotonic character of the temperature dependence of σ , and from the effect of the rate of strain on this relationship, the diffusion character of

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the interaction between dislocations and the solute atoms (or groups of atoms) can be inferred. There are 9 figures and 30 references of which 18 are Soviet, 10 English and 2 German.

ASSOCIATION: Institut Fiziki Metallov Ural'skogo Filiala AN SSSR
(Institute of Metal Physics, Ural Branch of the AS USSR)

SUBMITTED: 5th August 1958.

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AUTHORS: Grin', A. V., Pavlov, V. A. and Pereturina, I. A. SOV/126-6-1-14/33

TITLE: Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys (Vliyaniye staticheskikh iskazheniy kristallicheskoy reshetki na mekhanicheskiye svoystva splavov alyuminiya s magniyem)

II Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation (II Zavisimost' polnoy i ravnomernoy deformatsii ot temperatury i skorosti deformirovaniya)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 1, pp 110-115 (USSR)

ABSTRACT: The aim of the work described in the first part of this paper (1957, Vol 5, Nr 3, pp 493-500) was to study the influence on the mechanical properties of the static distortions of the crystal lattice which are caused by atoms of the dissolved elements and the diffusion processes taking place as a result of stresses occurring during plastic deformation. Aluminium-magnesium alloys were used in the experiments. Earlier investigations of

Card 1/6 one of the authors and his team have shown that

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Influence of Static Distortions of the Crystal Lattice on the
 Mechanical Properties of Aluminium-Magnesium Alloys
 II. Dependence of the Total and of the Uniform Deformation on the
 Temperature and the Speed of Deformation

considerable static distortions of the crystal lattice take place, which are brought about by magnesium atoms but the bond forces do not change the composition of the alloy. Such a combination of properties permits studying in the pure form the influence of crystal lattice distortions on the mechanical properties. The authors investigated the temperature dependence of the yield point and the ultimate strength of pure aluminium (containing about 0.01% Mg, 0.0017% Fe, 0.0014% Si, 0.0011% Cu) and its magnesium alloys (0.05, 0.1, 0.3, 0.5 and 1% Mg) in the temperature range between 80 and 700°K for widely differing deformation speeds ($6.4 \cdot 10^{-3}$, $2 \cdot 10^{-1}$, $2 \cdot 10^{-4}$). It was established that for pure aluminium the temperature dependence of the yield point in the temperature range up to 500°K is determined fundamentally by a change in the interatomic bond forces. At elevated temperatures a more pronounced dependence was detected of the yield point on the temperature which

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Influence of Static Distortions of the Crystal Lattice on the
Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the
Temperature and the Speed of Deformation

is apparently due to deformations along the grain boundaries. Hardening of the aluminium alloys with magnesium is caused by static distortions of the crystal lattice which are brought about by magnesium atoms. The diffusion processes lead to a non-monotonous dependence of the yield point on the temperature, an anomalous dependence on the speed of deformation and a complication of the dependence of the mechanical properties on the composition of the alloy and on the conditions of deformation. Maxima were observed of the yield point in the temperature range of about 500°K and increased values at 80°K which are attributed to various types of diffusion processes taking place in the case of deformation under the effect of stresses. Thus, it was found that static distortions of the crystal lattice, brought about by the magnesium atoms, cause an increase in the yield point and the ultimate strength. In the here published second part of the paper, the authors

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Influence of Static Distortions of the Crystal Lattice on the
Mechanical Properties of Aluminium-Magnesium Alloys
II. Dependence of the Total and of the Uniform Deformation on the
Temperature and the Speed of Deformation

investigate the total and the uniform deformation of alloys of aluminium with magnesium in the temperature range of 80 to 700°K for the same range of speeds of deformation. They found that the static distortions of the crystal lattice caused by magnesium atoms reduce the plasticity and that the diffusion processes taking place as a result of the stresses during deformation of alloys bring about an increase in the plasticity and complicate the temperature dependence of the total and the uniform elongations. In alloys of aluminium with magnesium, the crystal structure of which has suffered static distortions, a complicated dependence is observed of the total and the uniform elongations on the temperature and the speed of deformations. The plastic properties of such alloys is apparently determined by several factors which act simultaneously, namely: a more uniform distribution of the plastic deformation along the volume of the crystal and an

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Influence of Static Distortions of the Crystal Lattice on the
Mechanical Properties of Aluminium-Magnesium Alloys
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increase of the effective volume which participates in the deformation, brings about an increase in the plasticity of the alloys; a diffusion of the atoms of the alloying elements under the effect of stresses taking place during deformation and causing a reduction of the peaks of over-stresses in the neighbourhood of non-uniformities of the crystal lattice and in the neighbourhood of microscopic cracks bring about an increase of the plasticity; an increase of the types II and III distortions during plastic deformation and an increase of the resistance to deformation in the alloys bring about a reduction in the plasticity. Obviously, the interaction of these factors will cause a sufficiently complicated dependence of the uniform and the total elongations on

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Influence of Static Distortions of the Crystal Lattice on the Mechanical Properties of Aluminium-Magnesium Alloys

II. Dependence of the Total and of the Uniform Deformation on the Temperature and the Speed of Deformation

the composition of the alloy and the conditions of deformation.

There are 7 figures and 9 references, all of which are Soviet.

ASSOCIATION: Institut fiziki metallov Ural'skogo filiala AN SSSR
(Institute of Metal Physics, Ural Branch of the
Ac.Sc., USSR)

SUBMITTED: August 11, 1956

1. Aluminum-magnesium alloys--Mechanical properties
2. Crystals--Deformation
3. Crystals--Lattices
4. Crystals--Metallurgical effects

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18.9200

AUTHORS:

TITLE:

PERIODICAL:

ABSTRACT:

00621
S/126/60/009/02/015/035
E111/E335
Pavlov, V.A. and Pereturina, I.A.
The Influence of Alloying Additions on the Value and
Temperature Dependence of the Yield Point

Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 2,
pp 248 - 257 (USSR)

A discussion of results of previous investigations and of some new experimental data obtained on nickel and cobalt alloys is given. As in earlier work, the temperature dependence of the yield point of alloys is more complicated than that of pure metals. The position of the maximum on the temperature-yield point curves of alloys depends on the concentration of the alloying element and the rate of deformation. The change in bond strength cannot be explained by changes in interatomic considerations indicate that the influence of alloying additions on the mechanical properties is due to interaction between dislocations and atoms or groups of atoms of the alloying element, which reduces the mobility of

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The Influence of Alloying Additions on the Value and Temperature
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the dislocations and sometimes increases the volume of metal taking part in deformation. This increases the efficiency of use of the interatomic bond strength. The influence of admixtures on the resistance to deformation can be explained qualitatively by assuming that there is (according to Cottrell and Suzuki) a relation between the dislocations and the atoms of the admixtures, that there are non-uniformities in the concentrations of the type K state and also a redistribution of the atoms in the stress field with mobile dislocations according to shock. The strongest influence is shown by additions which cause static distortions in the original crystal lattice. In nickel-cobalt alloys, where the static distortion caused by the cobalt is small, the strengthening is due to ordering. Acknowledgments are expressed to A.N. Orlov for his comments.

There are 5 figures and 35 references, 15 of which are English, 3 German and 17 Soviet.

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S/126/60/009/02/015/033

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The Influence of Alloying Additions on the Value and Temperature
Dependence of the Yield Point

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of
Physics of Metals of the Ac.Sc., USSR)

SUBMITTED: August 1, 1959

Card 3/3

PERETURINA, M. F.

"Silo and Protein-Vitamin Factor as a Source of Vitamin-A Nutrition in the Diet of Cattle of the Russian White Variety." - Cand Agr Sci, Moscow Univ and 1954.
1 Mar 54. Dissertation (Vochernyaya Lektsiya Moscow, 18 Feb 54)

SO: SUK 186, 11 Aug 1954

KUDRYAVTSEV, N. T., PERETURINA, YE. F.

Electrochemistry

Electrodeposition of zinc-cadmium alloys. Zhur. prikl. Khim. 26 No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Unclassified.

KUDRYAVTSEV, N. T.; PERETURINA, Ye. F.

Zinc-Cadmium Alloys

Electrodeposition of zinc-cadmium alloys, Zhur. prikl. khim 26 No. 2, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncd.

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Determining final deformations and specific rolling pressures by experimental data from hot torsion testing. Izv. vys. ucheb. zav.; chern. met. 7 no.10:80-85 '64.

1. Sibirskiy metallurgicheskiy institut.

(MIRA 17:11)

PERETIAZHKO, M.Z.

Chemistry, Organic - Synthesis, Glycols

Interaction of malonic, pimelic and sebacic acid esters with allyl bromide and magnesium;
synthesis of bitertiary glycols of series
 $C_nH_{2n-2}(OH)_2$.

Dokl. AN SSSR/No. 3, 1952
82

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED

PERET'YAZHKO, M.Z.; PEL'KIS, P.S.

Synthesis of substituted 1,4-diphenylthiosemicarbazides and
their cyclization to 2,3-diaryl-5-arylamino-1,3,4-thiodiazolines.
Zhur. ob. khim. 34 no.10:3484-3486 O '64.

1. Institut organicheskoy khimii AN UkrSSR.

(MIRA 17:11)

PERETYAGIN, B.M.

Number of limiting cycles of the equation

$\frac{dy}{dx} = \frac{cx + dy + P(x, y)}{ax + by + Q(x, y)}$, in which $P(x, y)$ and $Q(x, y)$ are

homogeneous polynomials of the n th degree. Uch. zap. Smol.
gos. ped. inst. No.10:67-88 '62.

(MIRA 17:1)

PERETYAGIN, B.M.,

"Finding Periodic Solutions of Differential Equations." (Dissertation for the Degree of Candidate of Physical and Mathematical Sciences) Min Higher Education USSR, Kazan' State U imeni V. I. Ul'yanov-Lenin, Kazan', 1955.

SO: M-1036, 28 Mar 56

PERETYAGIN, B.M.

Number of limit cycles of an equation. Izv. vys. ucheb. zav.;
mat. no.1:179 '62. (MIRA 15:1)
(Differential equations)

20-1-7/64

AUTHOR:

PERETYAGIN, B.M.

TITLE:

On the Number of Boundary Cycles of the Equation $dy/dx = [cx + dy + P(x,y)] / [ax + by + Q(x,y)]$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynomials of the n -th Degree.
(O chisle predel'nykh tsiklov uravneniya $dy/dx = [cx + dy + P(x,y)] / [ax + by + Q(x,y)]$, gde $P(x,y)$ i $Q(x,y)$ - odnorodnyye polinom n -y stepeni. Russian).

PERIODICAL:

Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 1, pp 29 - 32 (U.S.S.R.)

ABSTRACT:

The paper under Review investigates the problem of the maximum number of boundary cycles for the differential equation listed in the title of the paper. In this context, $P(x,y)$ and $Q(x,y)$ are homogeneous polynomials of the n -th degree and the coordinate origin is a singularly point of the second group. We furthermore have $a, b \neq 0$. Some relevant previously published papers are referred to. First of all, the paper under review transforms several times the differential equation given in the title of the paper, thus obtaining (in polar coordinates)

$$d\varphi/d\rho = \rho R_1 + \rho^2 R_2 + \dots = \sum_{i=1}^{\infty} \rho^i R_i \text{ for the domain } (0 \leq \varphi \leq \varphi_1, 0 \leq \rho \leq 2\pi).$$

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20-1-7/64

On the Number of Boundary Cycles of the Equation $dy/dx = (cx + dy + P(x,y)) / (ax + by + Q(x,y))$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynomials of the n -th Degree.

In the paper under review, its author attempts to find a solution $q = q(\varphi)$ of this equation which satisfies the initial condition $q_0 = q(0)$. In this context, the ansatz of q is made as a power series $q = q_0 \mathcal{G}_1(\varphi, a_{ij}, b_{ij}) + q_0^2 \mathcal{G}_2(\varphi, a_{ij}, b_{ij}) +$

which converges in the domain $(G)(0 \leq \varphi \leq 2\pi, 0 \leq q_0 \leq q_2 \leq q_1)$.

For the determination of the coefficients $\mathcal{G}_k(\varphi, a_{ij}, b_{ij})$ recurrence formulae are given. If the coefficients are thus determined and if we have in the above solution ansatz $\varphi = 2\pi$, then we obtain $\mathcal{G}(2\pi) = \mathcal{G}_0 \mathcal{G}_1(2\pi, a_{ij}, b_{ij}) + \mathcal{G}_0^2 \mathcal{G}_2(2\pi, a_{ij}, b_{ij}) + \dots$

The positive roots of the difference $q - q_0 = q_0 [\mathcal{G}_1(2\pi, a_{ij}, b_{ij}) - 1] + \mathcal{G}_0^2 \mathcal{G}_2(2\pi, a_{ij}, b_{ij}) \dots$

then correspond to the boundary cycles. The particular difficulty of this method consists in the determination of the structure of the coefficients of the function $q(2\pi)$. The paper under review lists three relevant theorems and outlines the proofs. (No reproductions).

Card 2/3

20 1-7/64
On the Number of Boundary Cycles of the Equation $dy/dx = (cx + dy + P(x,y)) / (ax + by + Q(x,y))$, With $P(x,y)$ and $Q(x,y)$ Being Homogeneous Polynomials of the n -th Degree.

ASSOCIATION:
PRESENTED BY:
SUBMITTED:
AVAILABLE:

State Pedagogic Institute Smolensk
PETROVSKIY, I.G., Member of the Academy, on 14 February 1957
24 September 1956
Library of Congress

Card 3/3

PEREYABIN, V.A.

24.2/30 66702
 Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and
 Sitenko, I.G.
 Report on the Second All-Union Conference on Gas
 Electronics
 PERIODICAL: Radiotekhnika i elektronika, 1959, Vol. 4, No. 8,
 pp 1339 - 1358 (USSR)

ABSTRACT: The conference was organized by the A.S.-USSR, the
 Ministry of Higher Education and Moscow State University.
 The program of the conference was as follows:
 V.A. Granovskiy - "Methods of Reducing the Energy Lost in the
 Formation of a Plasma";
 L.I. Mironov and V.I. Goryunov - "Microdischarges and
 Pre-breakdown Currents Between Metal Electrodes in High
 Vacuum";
 V.A. Simonov and G.P. Kutyov - "Investigation of the
 Processes of Initiation and Development of a High-voltage
 Discharge in Vacuum";
 S.M. Belykh and G.V. Smirnovskaya - "The Character-
 istics of Ignition in High-vacuum in Magnetic Fields";
 L.I. Krasovskiy et al. - "Dealt with the transfer of the electrode
 material during the pre-breakdown stage in vacuum";
 P.B. Nosanov et al. - "The Motion of Micro-particles of
 Substances During Electric Breakdown in Vacuum";
 The third section dealt with the problems of electric
 sparks, corona and theoretical applications. It was
 presided over by I.S. Stokolnikov. The following papers
 were read:
 V.I. Leshov et al. - "Probe Investigation of the a.c.
 Corona Fields";
 G.M. Aleksandrov - "Elementary Processes in the Ionization
 Zone of Corona-type Conductors at Atmospheric Pressures";
 L.A. Burakina - "Appearance of a Corona Discharge in
 Oxygen and Nitrogen";
 S.M. Chislovskiy et al. - "Some Properties of the Corona
 Discharge in Hydrogen";
 A.S. Solov'ev et al. - "Microdischarges - Appearance of Discharge
 Phenomena Between a Point and a Plane at Gas Pressures of
 10⁻³ - 1.0 mm Hg";
 V.Yu. Kopylov et al. - "Methods of Unipolar Ionization of
 Air by Means of Aero-ionizers (see p 1335 of the journal);
 M.P. Kutyov et al. - "Time Spectra of the Radiation of
 a Spark Discharge in Inert Gases" (see p 1347 of the
 journal);
 M.P. Vavukov and A.A. Nak - "Production of High
 Temperatures by Means of Spark Discharges";
 V.A. Perelyabin - "Influence of the Magnetic Field of
 the Electric Discharge on the Dividing Surface of Two Media";
 I.S. Stokolnikov - "New Data from the Study of Long
 Sparks";
 V.Y. Kuznetsov - "Properties of the Breakdown of Compressed
 Air in a Comparatively Uniform Field in the Presence of
 Localized Non-uniformities";
 A.M. Gorbunov et al. - "Pulse and Oscillographic
 Measurements in the Measurement of the Discharge Lag
 in Dielectrics" (see p 1377 of the journal);
 A paper by B.M. Zolotarev dealt with the problem of the
 basic theory of the electric arc (see p 1330 of the
 journal).
 The fourth section was presided over by S.Yu. Luk'yanov
 and was concerned with the non-stationary and low-
 frequency discharges. The following papers were read:
 S.G. Makrakovskiy and A.A. Labud - "The Nature of the
 Current Interruption During the Electric Explosion of
 Metal Wire";
 V.I. Shcheglov - "Propagation of Plasma from Local Pulse
 Sources";
 Card 7/19 G.G. Timofeyev et al. - "Observation of an Electro-
 optically Dynamically Compressed Arc by Means of an Electron-optical
 Converter";
 M.S. Koffe and Ya.Ye. Yushmanov - "Investigation of
 the Radial Electric Field in the Low Frequency
 Discharge";
 V.A. Belyayev and M.K. Romanovskiy - "Experiments with an
 Electron Model of a System with Nonlinear Properties";
 A.M. Andrianov et al. - "Disturbance of Magnetic and Electric
 Fields in Powerful Pulse Discharge";
 G.M. Zolotarev (England) - "Spectroscopic Determination
 of the Plasma Temperature in the 'Zeta' Equipment"
 (see p 1336 of the journal).
 The paper by Hartel, discussed a lot of interest and
 Academician L.A. Artamonov expressed the opinion that
 the electrons and ion temperature in the 'Zeta' should
 be of the same order of magnitude as in the 'Zeta' to Harding,
 the electron temperature in the 'Zeta' is higher than that
 of the ions.

S/196/61/000/009/035/052
E194/E155

AUTHOR: Peretyagin, V.S.

TITLE: An experimental investigation of synthetic circuits
for circuit-breaker testing

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
no.9, 1961, 36-37, abstract 9I 235. (Tr. Ural'skogo
politekhn. in-ta, vol.77, 1960, 22-36)

TEXT: The article describes a synthetic circuit which ensures double forced arc-ignition in circuit breakers. A theoretical analysis is given of processes in sub-sections of the circuit when the recovery voltage section is connected after current interruption. The calculation is made using an equivalent circuit. To connect the voltage sub-circuit after current interruption a synchronising circuit is used which is based on use of the recovery voltage. The stability of the time of connection of this circuit depends on the stability of the voltage on the arc (when this latter is altered from 0 to 4000 V the connection-time scatter of the circuit is 6 - 7 microseconds). Results are given of an experimental check of the synchronisation circuit with
Card 1/2



PERETYAGINA, A. G.

PERETYAGINA, A. G.

"The Effectiveness of Commercial Crossing of Berkshire and Large White Species of Swine Under Conditions in the Leningrad Area." Cand Agr Sci, Leningrad Agricultural Inst, Leningrad, 1956. (RzhBiol. No 6, Mar 55)

SO: Sum No. 670, 29 S ep 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

L 17020-66

ACC NR. AP6006347

SOURCE CODE: UR/0413/66/005/002/0070/0071

INVENTOR: Kiselev, M. T.; Logvinov, I. A.; Nemarovskiy, L. I.; 20
Peretyagina, T. N.; Pistaov, A. P.; Tsarevskiy, V. L. E

ORG: none

TITLE: A spirometabolograph. Class 30, No. 178027

SOURCE: Izobrateniya, promyshlennyye obrastay, tovarnyye znaki,
no. 2, 1966, 70-71

TOPIC TAGS: spirometabolograph, human physiology, human respiration,
human metabolism

ABSTRACT: An Author Certificate has been issued for a spirometabolo-
graph consisting of a dry cavity sensor, absorber, valve housing,
mouthpiece, and a system of tubes. To reduce dead space and to
maintain the physiological conditions for respiration of the subject,
a stopcock has been situated between the inhale and exhale valves and
between the absorber and dry cavity sensor. A variation of the above
can purify the breathing system by virtue of a bellows connected to
the dry cavity sensor which is mounted by means of screws on a
stationary lid. The bellows has a movable cover which can be dis-
connected from the recording mechanism. A third variation is designed

Card 1/2

UDC: 616.24—073.173—7

I 17020-66

ACC NR: AP6006347

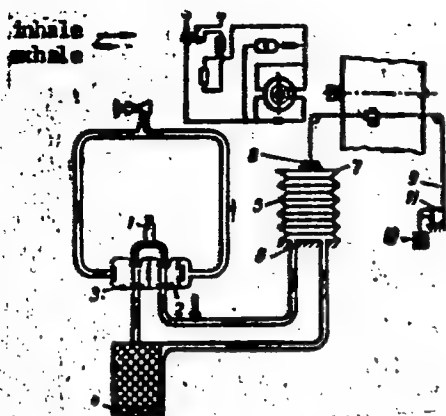


Fig. 1. Spirometabolograph

1 - Stopcock; 2 - inhale valve; 3 - exhale valve; 4 - absorber; 5 - bellows connected to the dry cavity sensor; 6 - stationary lid; 7 - movable lid; 8 - spool; 9 - cable of the balancing mechanism; 10 - weight; 11 - cam with adjustable arm.

to increase the accuracy of the investigation: A spool is attached to the movable bellows cover. A cable is attached to the spool which leads to a balancing mechanism consisting of a weight connected to a cam with an adjustable arm (see Fig. 1). Orig. arb. has: 1 figure. [CD]

SUB CODE: 06/ SUBM DATE: 08Sep64/ ATD PRESS: 4207

Card 2/2 mgs

PERETVAGIN, B.M.

On the number of limit cycles of equation $\frac{dy}{dx} = \frac{cx + dy + P(x, y)}{ax + by + Q(x, y)}$
where $P(x, y)$ and $Q(x, y)$ are homogenous
polynomials of degree n . Dokl. AN SSSR 114 no.1:29-32 May '57.
(MIRA 10:7)

1. Smolenskiy gosudarstvennyy pedagogicheskiy institut im. Karla
Marksa. Predstavleno akademikom I.G. Petrovskia.
(Differential equations)

PERETYAGINA, L.D.; SUDORGINA, Ye.P.; GUROVA, T.I.

Improving the production technology of nickel chlorides. Prom.
khim. reak. i osobo chist. veshch. no.1:16 '63. (MIRA 17:2)

PERE TYATIEVICH, G.V.

ROL'NIK, M.A.; RAPPOPORT, L.I.; PERETYATIEVICH, G.V.

Loudspeaker communications by power cable in stoves during cutter-
loader operations. Ugol' 33 no.4:27-29 Ap '53. (MIRA 11:4)
(Coal mines and mining) (Mine telecommunications)

. HELMFA, L.L., 1974, 1:1000, 1:1000, 1:1000.

Modernization of the carriage of the 10.8 mm caliber.
Mashinostroyeniye no. 5, 55, 56, 57, 165. (MOSKVA)

PERETYATKO, G.I., inzh.; TRUSY, A.F., inzh.

Six-spindle head for drilling holes and cutting threads.
Mashinostroenie no.6:85-86 N-D '65.

(MIRA 18:12)

MOROZOV, M.Ye., kand. tekhn. nauk; PERETYAT'KO, I.P., inzh.; KLYUYFVA, K.P., inzh.

Maximum limit of the increase in the output of electrometallization
equipment. Trudy VNIIAvtogen no.11:117-130 '64. (MIRA 18:3)

PERETIATKO, S.

Develop a new auditing program. Fin. SSSR 19 no.8:75-76 Ag '58.
(MIRA 11:9)

1. Kontroler-revisor Ukrainskoy respublikanskoy kontory Sel'khoz-banka.
(Ukraine--Agricultural credit--Auditing and Inspection)

ZAYKOV, M.A.; PERETYATKO, V.N.

Criteria of the plasticity of metal. Izv. vys. ucheb. zav.;
chern. met. 8 no.10:90-93 '65. (MIRA 18:9)

1. Sibirskiy metallurgicheskiy institut.

L 39763-65 ENT(m)/EWP(w)/EWA(a)/T-2/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(:)
ACCESSION NR: AP4047337 Pf-4 HW/EM MIN/JD/S/0148/64/000/010/0080/0085

AUTHOR: Peretyat'ko, V. N. ; Zaykov, M. A.

TITLE: Determination of critical deformation and specific pressure during rolling on the basis of hot twist test results

SOURCE: IVUZ. Chernaya metallurgiya, no. 10, 1964, 80-85

TOPIC TAGS: hot twist test, deformation, breaking load, failure, critical deformation, specific pressure, rolling

ABSTRACT: How twist tests have gained wide popularity because of their suitability to readily converted machinery and low and high-temperature testing. The cross-section of specimens does not change during testing which is another advantage. In exposing 6 and 30 mm Kh18N10T steel specimens to 900C, holding time in excess of 7 minutes does not affect test results. The strength of the specimens was improved by the application of longitudinal deformation which should amount to 2% of the breaking load. An increase in this preliminary deformation -- it was

Card 1/43

L 39763-65

ACCESSION NR: AP4047337

varied from 5 to 45 kg load application at 900 to 1000 C -- decreased the magnitude of the torsional moment and the number of torsions before failure occurred. By accelerating the test, the torsional moment increases and plasticity is adversely affected. The mean rate of deformation is written

$$u_{cp} = \frac{N}{60z_n} \ln \left(1 + \frac{\pi d_0 z_n}{2l_0} \right),$$

where u_{cp} is the mean testing rate during torsion, 1/sec; z_n - number of torsions before failure; d_0, l_0 - dimensions of specimens, mm; N - rate of testing machine, rpm. The combined effect of plasticity and resistance to deformation determine the real deformability of the specimens with a given method of treatment under pressure. The authors refer to this combined effect as "rollability". The results of the twist tests supply the specific pressure during rolling. All results were verified on an industrial scale by using the cogging and sheet mills of the Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine). Orig. art. has: 4 figures, 4 tables and 7 equations.

Card 2/4

L 39763-65

ACCESSION NR: AP4047337

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Sibirian Metallurgical Institute)

SUBMITTED: 17 May 63

ENCL: 01

SUB CODE: MM

NR REF SOV: 011

OTHER: 000

Card 3/4

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Center of deformation in the periodic rolling of wedge-shaped strips. Izv.vys.ucheb.zav.; Chern.met. 5 no.4:82-90 '62.
(MIRA 15:5)

1. Sibirskiy metallurgicheskiy institut.
(Rolling (Metalwork)) (Deformations (Mechanics))

PERETIAT'KO, V.N.; ZAYKOV, M.A.

Evaluating the rigidity of stressed state. Izv.vys.ucheb.zav.:
chern. mat. 8 no.4:117-122 '65. (MIRA 12:1)

1. Sibirskiy metallurgicheskiy institut.

SOV/137-59-1 1231

Translation from: Referativnyy zhurnal Metallurgiya. 1959, Nr 1 p 168 (USSR)

AUTHORS: Mikhaylets, N S , Tarasko, D. I , Peretyatko, V N

TITLE: How to Improve the Mechanical Properties of Steel (Scientific Engineering Conference. Stalinsk, May 1958) [Puti uluchsheniya mekhanicheskikh svoystv stali: Nauchno-tekhn. konferentsiya Stalinsk, may 1958 g.]

PERIODICAL: Izv vyssh uchebn zavedeniy Chern metallurgiya 1958 Nr 5 pp 197-199

ABSTRACT: Information on the scientific engineering conference convoked by the Kuznetsk Inter-oblast Management Board of the NTOChM (Scientific-engineering Society for Iron and Steel) and the Directorate of the Kuznetsk Metallurgical Kombinat.

1 B

Card 1/1

PERETYAT'KO, V.N.; SADCHIKOV, V.M.

Dismountable electric furnace for torsion tests of metals at high temperatures. Zav. lab. 30 no.9:1146-1147 '64. (MIRA 18:?)

1. Sibirskiy metallurgicheskiy institut.

MIRENSKIY, M.L.; PERETYAT'KO, V.N.

Calculating the diameters of roughing rolls on a three-high mill with
mating grooves. Izv.vys.ucheb.zav.; chern.met. 5 no.6:91-95 '62.
(MIRA 15:7)

1. Kuznetskiy metallurgicheskiy kombinat i Sibirskiy
metallurgicheskiy institut.
(Rolls (Iron mills))

PERETYAT'KO, V.N.; ZAYKOV, M.A.

Plasticity of carbon steels. Izv.vys.ucheb.zav.; chern.met. 4
no.6:67-74 '61. (MIRA 14:6)

1. Sibirskiy metallurgicheskiy institut.
(Steel—Testing) (Plasticity)

ZAYKOV, M.A., kand.tekhn.nauk, dots.; PERET'YAT'KO, V.N., inzh.

Criteria of plasticity in press working of metals. Izv.vys.
ucheb.zav.; chern.met. 2 no.8:75-86 Ag '59.
(MIRA 13:4)

1. Sibirskiy metallurgicheskiy institut. Redomendovano kafedroy
obrabotki metallov davleniyem Sibirskogo metallurgicheskogo
instituta.
(Metalwork) (Plasticity)

ZAYKOV, M.A., kand.tekhn.nauk dots.; SHAMETS, Ya.V., inzh.; PERETIAT'KO,
V.N., inzh.

Hardening curve in the hot rolling of steel. Izv.vys.ucheb.zav.;
chern.met. 2 no.9:73-82 S '59. (MIRA 13:4)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano
kafedroy obrabotki metallov davleniyem Sibirskogo
metallurgicheskogo instituta.
(Rolling (Metalwork)) (Steel--Hardening)

S/148 '62/000/004/006/006
2103/E383

AUTHORS: Politskiy, V.V. and Zaykov, N.A.
TITLE: Methods of calculations pertaining to technological processes of the squeezing group of metal-working operations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 4, 1962, pp. 204 - 206

TEXT: A conference devoted to the above subject and organized by Ural'skiy politekhnicheskii institut (Ural Polytechnical Institute), Leningradskiy mekhanicheskii institut (Leningrad Mechanical Institute), Sverdlovskiy i Leningradskoye pravleniye Nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (Boards of the Sverdlovsk and Leningrad Machine-building Industrial Research Associations) and Sverdlovskoye pravleniye Nauchno-tekhnicheskogo obshchestva Chernoy metallurgii Tsentral'nogo byulletenya tekhnicheskoy informatsii Sverdlovskogo sovnar'kha (Board of Sverdlovsk Scientific Technical Association of Ferrous Metallurgy of the Central Bulletin of Technical Information of the Sverdlovsk Card 1/4

Engineering Methods

S/148/62/000/004/006/006
E193/E383

Sovnar'khiz)
was convened on November 14 - 18, 1961 in Sverdlovsk.
340 delegates, representing 23 higher-educational establishments,
42 industrial plants and 22 research and development institutes
of the Soviet Union attended. The proceedings comprised sections
on "drawing and rolling", "tube production" and "forging,
stamping and extrusion".

After an opening address by the chairman of the Orgkomitet,
Doctor of Technical Sciences Professor I.Ya. Tarnovskiy, a
paper on "The role of science and theoretical studies in the
development of improved methods of metal-working by the squeezing
group of operations" was read by Doctor of Technical Sciences
Professor Ye.V. Pal'mov.

Corresponding Member of the AS USSR A.I. Tseli'ov delivered a
paper devoted to the determination of roll pressure.

Corresponding Member of the AS USSR A.A. Il'yushin read a paper
on the present state and application of the general theory of
elasticity to the metal-working of the squeezing group operations.
The problem of determination of the plasticity (workability) is
Card 2/4

Engineering methods

S/148/62/000/004/006/006
E193/2323

the practical calculations of plastic working of metals was
presented by Doctor of Technical Sciences
G.M. Belyakov.

Other reports during the plenary session included "Methods of
linearization of basic equations of the theory of plasticity" by
Doctor of Technical Sciences Ye.P. Unkov, "On the application
of variation equations of the mechanics of plastic media in the
development of engineering methods of calculations of metal-
working processes of the squeezing group" by I.Ya. Tarnovskiy
and "Development of the theory of plastic shaping of metals" by
A.D. Tolchenov.

In the section "rolling and drawing", 35 papers were delivered;
their subjects can be divided into the following groups:

- 1) Mathematical analysis of metal-working processes of the
squeezing group;
- 2) Kinematics of the metal-working processes of operations of
the squeezing group;
- 3) Energetic conditions during deformation;
- 4) Deformation of metals in rolls of complex shape;

Card 3/4

Engineering methods

S/148/62/000/004/006/006
E193/E383

5) Distribution of stresses and strains in rolls;
6) Rolling of bi-metals, extrusion, plasticity, etc.
Particular interest was aroused by papers delivered by Doctor of Technical Sciences P.I. Polubkin and his co-workers on the application of photo-elastic methods for the analysis of stresses and strains in rolling.

The problem of the technological foundations of automation was discussed only in one paper by Candidate of Technical Sciences V.I. Vydrin.

In the 10 papers devoted to tube production, the following problems were discussed: study of specific pressure during tube-rolling; the state of stress during piercing; the physical nature of the piercing process.

26 papers delivered during the session on forging, stamping and extrusion were devoted mainly to analysis of the state of stress and strain, investigation of pressures required and selection of the shape of the blanks in forging and stamping operations.

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)

SUBMITTED: December 17, 1961

Card 4/4

KOBYZEV, V.K.; DUBROVIN, A.K.; PERETYAT'KO, V.N.; LASKARONSKIY, E.N.

Heating and rolling EI171 and EI432 stainless steel ingots. Stal'
23 no. 3:245-246 Kr '64. (MIRA 17:5)

1. Kuznetskiy metallurgicheskiy kombinat.

S/0133/64/000/003/0245/0246

ACCESSION NR: AP4019480

AUTHORS: Kobytsev, V. K.; Dubrovin, A. K.; Paratyat'ko, V. N.; Laskaronskiy, E. N.

TITLE: Heating and rolling ingots of stainless steels EI171 and EI432

SOURCE: Stal', no. 3, 1964, 245-246

TOPIC TAGS: stainless steel, heat treatment, rolling effect, roll pressure, heat resistant steel, chromium nickel steel, steel EI171, steel EI432

ABSTRACT: Rolling of chromium-nickel acid-resistant and heat-resistant steels EI171 (Kh17N13M2T) and EI432 (Kh17N13M3T) was successfully attempted after a single heating at the Kuznetsk Metallurgical Combine. The work was done to improve the former method which called for two heatings and light pressure rolls, and which often produced large tears and numerous hair cracks in the metal. In the present experiments metal was malleablized at 1240-1260C for 6 hours. This allowed increasing the size reduction to 25-55 mm and completing the rolling process in 23 passes. The terminal temperature was above 1100C and was within the range of maximum steel plasticity. The surface quality was found to improve with the increase of the terminal temperature (see Fig. 1 on the Enclosure). The total heating time was reduced from 16 hr 45 min to 12 hr 15 min; the number of passes

Card 1/3

PERETIAT'RO, V.N.; ZAYKOV, M.A.

Engineering methods of calculating technological processes of
the press working of metals. Izv.vys.ucheb.zav.; chern.met. 5
no.4:204-206 '62. (MIRA 15:5)

1. Sibirskiy metallurgicheskiy institut.
(Rolling (Metalwork)) (Forging)

ZAYKOV, M.A., kand.tekhn.nauk, dotsent; TSELUIKOV, V.S., inzh.; KAMINSKIY,
D.M., kand.tekhn.nauk, dotsent; PERET'YAT'KO, V.M., inzh.; KAPTANOV,
M.P., inzh.; PERMYAKOV, V.M., inzh.; PROKOP'YEV, A.V., inzh.

Investigating and improving cogging conditions of sheet rolling
mills. Izv. vys. ucheb. zav.; chern.met. no.5:131-144 My '58.
(MIRA 11:7)

1.Sibirskiy metallurgicheskiy institut.
(Rolling mills)

MIKHAYLETS, N.S., kand.tekhn.nauk; TARASEO, D.I., kand.tekhn.nauk;
PERETYAT'KO, V.N., inzh.

Ways of improving mechanical properties of steel. Izv. vys. ucheb.
zav.; chern.met. no.5:197-199 My '58. (MIRA 11:7)
(Steel--Metallurgy)

TSELUYKOV, V.S.; PERETIATKO, V.N.; KAMINSKIY, D.M.; MERKUTOV, V.N.

Potentialities for increasing the output of medium sheet mills.
Izv.vys.ucheb.zav.; Chern.Met. 8 no.6:113-117 '65.

(MIRA 18:8)

1. Sibirskiy metallurgicheskiy institut.

PERETYAT'KO, V.N.

New developments in the field of rolling techniques. Izv. vys.
ucheb. zav.; Chern. met. 8 no.10:180-181 '65. (MIRA 18.9)

1. Sibirskiy metallurgicheskiy institut.

Prilozheniye 1
SKOBLO, David Il'ich, kandidat tekhnicheskikh nauk; GLYBIN, Illarion
Petrovich, kandidat tekhnicheskikh nauk; PERSTYATKO, Yevgeniy
Nikolayevich, inzhener; KASPERSKAYA, Ye.I., redaktor; BONDARENKO,
O.P., redaktor; MATUSEVICH, S.M., tekhnicheskiiy redaktor

[Automatization of production processes in the food industry]
Avtomatizatsiya proizvodstvennykh protsessov pishchevoi promyshlen-
nosti. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1957. 363 p. (MIRA 10:7)
(Automatic control) (Food industry)

VIL'DANOV, G.; RASNER, Ya.; PERETYAT'KO, Ya.; POPLAVSKIY, D.

Railroad personnel should get first class service! Obshchestv.
pit. no.12:35-38 D '59. (MIRA 13:4)

1. Nachal'nik otdela obshchestvennogo pitaniya zheleznodorozhnogo upravleniya rabochego snabzheniya Kazakhskoy dorogi (for Vil'danov).
 2. Starshiy inspektor trgovogo otdela zheleznodorozhnogo upravleniya rabochego snabzheniya Kazakhskoy dorogi (for Rasner).
 3. Nachal'nik zheleznodorozhnogo upravleniya rabochego snabzheniya Yuzhno Ural'skoy dorogi (for Peretyat'ko).
 4. Nachal'nik otdela obshchestvennogo pitaniya zheleznodorozhnogo upravleniya rabochego snabzheniya Yugo-Zapadnoy dorogi (for Poplavskiy).
- (Restaurants, lunchrooms, etc.) (Railroads--Employees)

PERETYATKO, Ye.P.

Modification of the design of conveyers for small output assembly
lines. Shvein.prom. no.2:9 Mr-Ap '61. (MIRA 14:4)

1. Kiylovkyy a shveynaya fabrika No.4.
(Kiev--Clothing industry) (Conveying machinery)

PEL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis of substituted derivatives of 1,4-diphenylthiosemicarbazide.
Zhur. ob. khim. 31 no. 11:3726-3728 N '61. (MIRA 14:11)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.
(Semicarbazide)

PERL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis and study of the properties of derivatives of
1,4-diphenylthiosemicarbazide. Ukr. khim. zhur. 29 no.2:
172-174 '63. (MIRA 16s6)

1. Institut organicheskoy khimii AN Ukr-SSR.
(Semicarbazide)

PERETYAZHKO, M.Z.; FEL'KIS, P.S.

Synthesis of 2,3-diaryl-5-arylamino-1,3,4-thiodiazoline. Ukr.khim.
zhur. 30 no.2:206-208 '64. (MIRA 17:4)

1. Institut organicheskoy khimii AN UkrSSR.

PERETIAZHKO, M.Z.; PEL'KIS, P.S.

S-alkyl derivatives of substituted 1,4-diphenylthiosemicarb-
sides. Ukr. khim. zhur. 29 no.4:418-420 '63. (MIRA 16r6)

1. Institut organicheskoy khimii AN UkrSSR.
(Semicarbaside)

PERL'KIS, P.S.; PERETYAZHKO, M.Z.

Synthesis and study of the properties of carboxy- and sulfonamide-substituted derivatives of 1,4-diphenylthiosemicarbazide. Ukr. khim. zhur. 26 no.5:637-640 '60. (MIRA 13:11)

1. Institut organicheskoy khimii AN USSR.
(Semicarbazide)

LOKTIONOVA, N.A.; RASTVOROVA, N.M.; KOVRIZHNYKH, V.G.; KOMAROVA, N.K.;
TELIS, M.Ya.; DOBATKIN, V.I., rukovoditel' raboty; Prinimali
uchastiye: VINOKUROV, N.G.; PONAGAYBO, Yu.N.; PERETYKINA, I.N.;
BULGAKOV, G.F.; PYATUNINA, V.I.; TITKOV, S.M.; KALMYKOV, K.V.;
BRASLAVSKIY, D.N.; VEYSMAN, S.Ya.; APER'YANOVA, N.N.;
PANTYUSHKOVA, N.S.; PRIVEZENTSEVA, T.V.

Ways to reduce warping of large-size parts made of the
AK4-1 alloy. Alium. splavy no.3:271-284 '64.

(MIRA 17:6)

137 AND 138 COPIES		139 AND 140 COPIES	
PRECISIONS AND CORRECTIONS			
<i>BC</i> <i>B-I-10</i> Acidproof ink and concrete. B. G. PUGH and E. W. TERTAKOVA (Trans. VIth Internat. Congr. [1952], 1953, 2, No. 1, 291-313).—Suitable specifications are discussed. Canadian andomite cannot be completely replaced by quartz in these materials. On. Am. (p).			
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Foliate, a Ural acid-resisting material. B. G. Ferts, E. P. Mikhaleva and N. V. Yushmanov. *Khimichesk. zap. 6* (1935).—Ural foliate resists the action of H₂SO₄ better than andesite and can be used in packing and lining of H₂SO₄ towers. Chas. Blanc

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CURIEVICI, I.; PERETZ, D.

Research on cooling granulated ammonium nitrate in fluidized layer.
Rev chimie Min petr 13 no.7:401-404 J1 '62.

BRANISTE, C.; PERETZ, D.; SERBAN, Silvia [deceased]

Conduct of special carbon steels and those poorly alloyed to
phosphatization. Studii chim Iasi 13 no.2:311-317 '62.

PERETZ, D.

1 1
/ Determination of the thermal conductivity of liquids in an unsteady (temperature) regime. Teodor I. Campan and David Peretz. *Bul. inst. politeh. Iasi* [7], 3, 185-94 (1967).

5
—An app. for measuring the thermal cond. of liquids is described. The liquid is contained in a cylindrical glass vessel provided with a double bottom, and is initially at a desired uniform temp. A cooling agent is circulated through the double bottom and the temp. at a point below the surface of the liquid, along the axis of the vessel, is detd. at a specified time after cooling has been started. The measurements may be influenced by convection currents and by various

end effects, but such disturbances can be minimized by a proper choice of exptl. conditions. The accuracy of the method is discussed and thermal cond. data are reported for H₂O, glycerol, and EtOH in the temp. ranges from about 13 to 89°, 14 to 72°, and 16 to 64°, resp.

S. Alexander Stern

422
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48

Peretz, D

15

Chrome-yellow and gas-black paints for corrosion protection of iron. Constantin Brancu, David Peretz, and Silvia Seban. *Bul. inst. politek. Jasi* (N.S.) 4(8), Nos. 3-4, 163-66 (1958) (in German).—C.d. and resistance were measured over a 10-day period to study the behavior of paints on sheet iron and as free films on cellophane during immersion in cond. water. The paints contained, in addn. to drier soln., 48% chrome yellow (I) and 48% linseed oil (II), or linden oil (III); 16.5% black (IV) and 81% II; 11.9% IV and 85.29% III. With I paints, no current flows initially; but after 9 hrs., the protective oxide layer is destroyed. It is partially reformed, but after 5 days 60×10^{-10} amp./sq. cm. current was measured. The free film had a similar decrease in resistance. The best corrosion protection was obtained with the III and IV paint with a current flow of 5×10^{-10} amp./sq. cm. after 8 days. Kibaki paints contg. 34.4 I, 5.17 IV, and 57.43% oil had a residual current of 10×10^{-10} amp./sq. cm. with II and 5×10^{-10} amp./sq. cm. with III oil.

Konrad Parker

h

PERETZ, DAVID

RUMINIL/Atomic and Molecular Physics - Heat

D-6

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 7909

Author : Campan Teodor, Peretz David

Inst : -

Title : Determination of the Heat Conduction of Liquids in Non-Stationary Mode

Orig Pub : Bul. Inst. politchn. Nasi, 1957, 3, No 1-2, 185-194

Abstract : To determine the heat conduction of liquids, use is made of the method of half-bounded and homogeneous body, containing no internal sources of heat. The temperature of a point, located at a distance x from the surface Yx , which is established after a time τ elapsed from the instant of the cooling of the liquid, is a function of the Fourier criterion and of the temperature difference. The numerical value of these functions is taken from tables, the temperature t , the time, τ , and the distance, z , and measured, the specific weight and the specific heat C_p of the liquid are known, and thus, the heat conduction of the liquid is calculated.

Card : 1/2

23

PEREVA, Vladimir Mikhaylovich; PELL, V.G., dots., kand. tekhn. nauk,
red.; ALEKSANDER, I.N., inzh., red.; RAKOVSKIY, V.V., inzh., red.;
BARANOV, A.M., red.; AKSEL'ROD, I.Sh., tekhn. red.

[German-Russian dictionary of motion-picture and photographic
technology] Nemetsko-russkii slovar' po kinofototekhnike. Pod ob-
shchei red. V.G.Gellia. Red. I.N.Aleksander, V.V.Rakovskii. Mo-
skva, Glav.red. inostr. nauchno-tekhn. slovarei Fizmatgiz, 1962.
583 p. (MIRA 15:12)

(Motion pictures--Dictionaries) (Photography--Dictionaries)
(German language--Dictionaries--Russian)

PEREVALOV, G.Ye.

A measure of sets lying on two-dimensional continua. Sib. mat. zhur.
3 no.4:575-581 J1-Ag '62. (MIRA 15:7)
(Aggregates)

PEREVALOV, V.

Lomonosov and the Ukraine. Nauka i zhyttia no.11:29-30 N '61.

(MIRA 14:12)

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PERLVAIO, V.G.; KARAPIN, B.I.

Ways of improving the purification of oil-field waste waters.
Neft. khoz. 3' no.7:29-33 J1 '60. (MIRA 14:10)
(Sewage--Purification)

PEREVALOV, N.S.

USSR/Human and Animal Physiology - Blood.

V-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, 3866

Author : N.S. Perevalov

Inst : -

Title : An Assembling Syphon for "Native" Plasma Transfusion.

Orig Pub : Vopr. travmatil. i ortopedii, Issue 4, Irkutsk, 1957,
52-54

Abstract : No abstract.

Card 1/1

PEREVALOV, A.A.

Data on the propagation biology of the hare *Lepus tibetanus*.
Zool.shur. 35 no.1:141-154 Ja '56. (MLRA 9:5)

1. Kazakhstanskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'-
skogo instituta okhotnich'yego promysla.
(Hares)

PEREVALOV, A. A.

"The Sand Hare (Ecology and Hunting in Kazakhstan)." Cand Biol Sci, Inst
of Zoology, Acad Sci Kazakh SSR, Alma-Ata, 1955. (KZhEiol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR
Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

PEREVALOV, D.M., inzhener.

Use of fork-lift trucks in the repair of open-hearth furnaces.
Mekh.trud.rab. 8 no.5:45 J1 '54. (MLRA 7:9)
(Fork-lift trucks)

PERKVALOV, G.Ye.; KUPIN, S.P., dotsent, otv. red.; MISHAGIN, V.N., kand.
tekhn.nauk, red.; PEREVALOV, G.Ye., starshiy prepodavatel', red.

[Linear measure of plane continua.] O lineinoy mere ploskikh
kontinuumov. [Omsk] 1962. 26 p. (Tyumen'. Gosudarstvennyi
pedagogicheskii institut. Kafedra matematiki. Uchenye zapiski,
vol.13, no.3) (MIRA 18:6)